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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/696,523	10/23/2000	Ji Su	16219-1	4896

7590 12/16/2002

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EXAMINER

BUDD, MARK OSBORNE

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 12/16/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

696 523

Applicant(s)

Su Ad

Examiner

M. Budd

Group Art Unit

2834

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

☒ Responsive to communication(s) filed on 11-8-02

☒ This action is **FINAL**.

- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

☒ Claim(s) 1-14 is/are pending in the application.

Of the above claim(s) _____ is/are withdrawn from consideration.

☒ Claim(s) 8-13 is/are allowed.

☒ Claim(s) 1-7 and 14 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some* ☐ None of the:
 - ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____
 - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

Office Action Summary

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1, 4 and 5 are rejected under 35 U.S.C. 102(a) as being anticipated by Vorie, Benecke or Eycke.

Note Eycke (fig. 2), membrane #34 support base #42, #44, electro-active bender #36 and connecting means for operatively and nonrigidly connecting the membrane to the bender. In Benecke, note benders #1-4, base #5, connection means (frictional contact) and membrane (the unnumbered thin moveable member). In Vorie, see fig. 3 for similar elements e.g. Support #42, bender #14, non rigid connector #46 and membrane #40.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benecke, Eycke and Vorie.

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The references teach the claimed structure except for some specific materials has long been held to be within the skill expected of the routineer. Thus to select adhesive for fastening or a polymer for the piezo materials would have been obvious to one of ordinary skill in the art.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vorie, Benecke or Eycke in view of Mcnaney, Ivanov or Assard.

Vorie, Benecke and Eycke teach the claimed structure using either a single bender actuator or less than three in contact at any given time. The more duplication of parts has long been held to be within the skill expected of the routineer. Further, each of Assard, Ivanov and Mcnaney teach using multiple bender elements operatively and nonrigidly connected to manipulate an element. Thus in consideration of the above it would have been obvious to one of ordinary skill in the art to use multiple benders to manipulate a membrane.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vorie, Benecke or Eycke in view of Sawyer, Palo or Adler.

Each of Vorie, Eycke and Benecke teach the basic device but use benders of uniform thickness. However, Sawyer, Palo and Adler each teach providing a piezo bender with nonuniform thickness to alter output and increase the strength of the element. Thus, for at least this reason, it would have been obvious to one of ordinary skill in the art to use variable thickness bender elements in Vorie, Eycke or Benecke.

Claims 8-13 are allowed.

Further cited of interest are Peterman and Bowen.

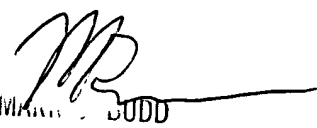
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THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Budd/ek

12/13/02


WILLIAM J. BUDD
PRIMARY EXAMINER
ART UNIT 212